Attachment 6
Monitoring, Assessment, and Performance Measures

Drainage Basin C North Regional Detention Pond and Pump Station

The project is located in Reclamation District (RD) 784 and includes the Drainage Basin C North Regional Detention Basin and the associated pumping facilities. Reclamation District 784 has previously constructed the Drainage Basin C North Regional Detention pond as part of the project and now seeks funding to complete the discharge pumping facilities to complete the project. The primary purpose of the project is to reduce flood risk, however, the project also provides additional benefits to reduce flood insurance costs and requirements, provides water quality benefits, and provides benefits to groundwater recharge and quality. The following paragraphs briefly describe how the project will be monitored and the measures that will be used to assess the project's success and the Project Performance Measurements Table provides a summary of these measures and goals.

Flood Risk Reduction

The project is designed to address the limited capacity of the existing conveyance system in Drainage Basin C of RD 784. Enlargement of the existing conveyance system was evaluated and determined infeasible because of right-of-way limitations and environmental issues. The location of the project was selected because of the ability to intercept the Yuba County Airport storm water runoff as soon as possible. The Yuba County Airport and the industrial areas at the Airport is the major generator of storm water runoff. This runoff has historically flooded the lower portion of the Industrial Park and the Butterfly/Buttercup residential neighborhood. The Regional Drainage Facility will allow the flow downstream to be mitigated to levels that do not require channel improvements or upgrades. Pump Station No. 10 will then discharge the excess storm water directly to the Feather River to evacuate the detention pond volume below the invert of Lateral 15 to provide the storage space before the next storm event. Without the pump station, the pond would have a dead pool that would not be useable for storage therefore the pump station provides a dual purpose of helping to reduce peak flows and increasing storage runoff volume.

The flood risk reduction goal of the project will be measured simply by observing stages in the area to ensure that they are reduced. Additionally, RD 784 will continue to monitor flood claims in the area to ensure that the number of claims and/or amount of damages is reduced. The projects ultimate success will be decreasing the frequency and damages of flooding to existing properties within the basin.

Flood Insurance

The second goal of the project is to reduce the FEMA base floodplain in the project area. The project area currently shows large portions in the FEMA Special Flood Hazard Area (SFHA) Zone A on the effective Flood Insurance Rate Map (Map Number 06115C0405D, Effective February 18, 2011). Properties within the SFHA as designated on the Flood Insurance Rate Maps are required to purchase flood insurance for any federally backed mortgages and also have stringent development restrictions for any newly constructed or substantially improved structures. Residential flood insurance rates in SFHA Zone A can range from $1,000 per year up to $3,000 per year depending on the structure and coverage. Removing these structures from the SFHA will both eliminate the requirement to purchase flood insurance and will reduce rates to FEMA's preferred risk policies which are less than $371 per year.

As a result of the flood stage reductions discussed above, the project area will be eligible for a Letter of Map Revision (LOMR). A LOMR is a formal process through FEMA to re-map areas of Flood Insurance Rate Maps as a result of drainage or flood protection improvements. Once the Drainage Basin C North Regional Detention Pond and Pump Station are completed the project will be eligible for a LOMR to reduce the extent of the SFHA thereby reducing the financial burden of flood insurance on existing residents. Achieving this goal will be measured by an approved LOMR for the project area.

Water Quality

The next goal of this project is water quality. The detention facility for this project is considered a "wet pond" by storm water management definition. According to the EPA, "wet ponds" are constructed basins that have a permanent pool of water throughout the year (or at least throughout the wet season). Ponds treat incoming storm water runoff by allowing particles to settle and algae to take up nutrients. The primary removal mechanism is settling as storm water runoff resides in this pool, and pollutant uptake, particularly of nutrients, also occurs through biological activity in the pond.[i] The Drainage Basin C North Regional Detention Pond will act as a wet pond per the EPA definition. It is expected that the basin will allow settling to occur in the basin prior to discharge to the Feather River through the pump station. This goal will be achieved by reducing the turbidity of the basin inflows by 5% - 10% as measured in nephelometric turbidity units (NTU) by testing methods such as EPA Method 180.1 or other standardized methods.

Groundwater Quality

The final benefit and goal of the project is to improve groundwater quality in the Yuba South Sub-basin as described in the Yuba County Water Agency Groundwater Management Plan (GMP). According to the GMP, "The California Legislature and Governor, as well as private

citizens, have become increasingly concerned about groundwater quality and public supply well closures because of the detection of chemicals, such as the gasoline additive MTBE, solvents from industrial sources, and more recently perchlorate. To address these concerns, the Supplemental Report of the 1999 Budget Act and later the Groundwater Quality Monitoring Act of 2001 (AB 599 – Statutes of 2001) required SWRCB to develop a comprehensive ambient groundwater monitoring plan." The GMP continues with objectives to specifically address monitoring requirements to address protection of recharge areas. Although the Regional Pump Station and Basin facility does not directly address monitoring objectives, it does provide benefit to protection of groundwater recharge in that the pond provides a collection and detention system alleviating historical overland flows that contain runoff from industrial areas near the Yuba County Airport industrial area. Without the improvements being completed through this project those potentially contaminated flows would flood surrounding lands allowing infiltration into surrounding commercial, rural residential, and/or agricultural wells creating groundwater contamination. Therefore, this project contributes to the objective of the GMP by greatly reducing the frequency in which flows will leave drainage channels thereby reducing the potential for contamination through surrounding wells.

This goal will be monitored and measured through the existing monitoring and measurement plans in the GMP. Although it will be difficult to measure the specific contribution of the project to groundwater quality improvements in the GMP sub-basin, the project is consistent with the identified measures of the GMP and will therefore assume contribution to groundwater quality improvements. Success will be determined by improvements in groundwater quality in the Yuba South Sub-basin in the GWP.

---

[i] http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=68&minmeasure=5

Attachment 6

Project Performance Measures Table: Reclamation District 784 North Drainage Basin C Regional Detention Pond and Pump Station

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
1. Reduced Flood Risk	Increased Flood Protection	Reduced Flood Damages	Decreased flood stages in Drainage Basins B and C	Reduction in flood damage claims in drainage Basins B and C	Measurable reduction in flood stages and flood damage claims
2. Reduction of required flood insurance policies	Reduction in size of FEMA Special Flood Hazard Area	Reduced Flood Damages	Reduction in size of FEMA Base Flood Plain	Reduced number of required flood insurance policies and reduction of policy premiums	Approved Letter of Map Revision (LOMR)
3. Improved Storm Water Quality	Reduced turbidity in storm water discharges	Measurements of storm water inflow and outflow	Measurable reduction in nephelometric turbidity units (NTU) from inflow to outflow	EPA Method 180.1 or other standard methods	5% - 10% reduction in storm water discharge turbidity
4. Improved Groundwater Quality in Yuba South Sub-basin	1. Reduce potential for groundwater contamination through rural wells; 2. Improvement in water quality in Yuba South Sub-basin	1. Reduced flood stages decreasing the potential for flooding existing wells; 2. Groundwater Quality monitoring	1. Reduced flood stages; 2. Improved water quality in Yuba South Sub-basin	1. Reduced Flood Stages; 2. Measurements and monitoring through the Yuba County Water Agency Groundwater Management Program	Reduction or no net increase of groundwater contaminants in Yuba South sub-basin